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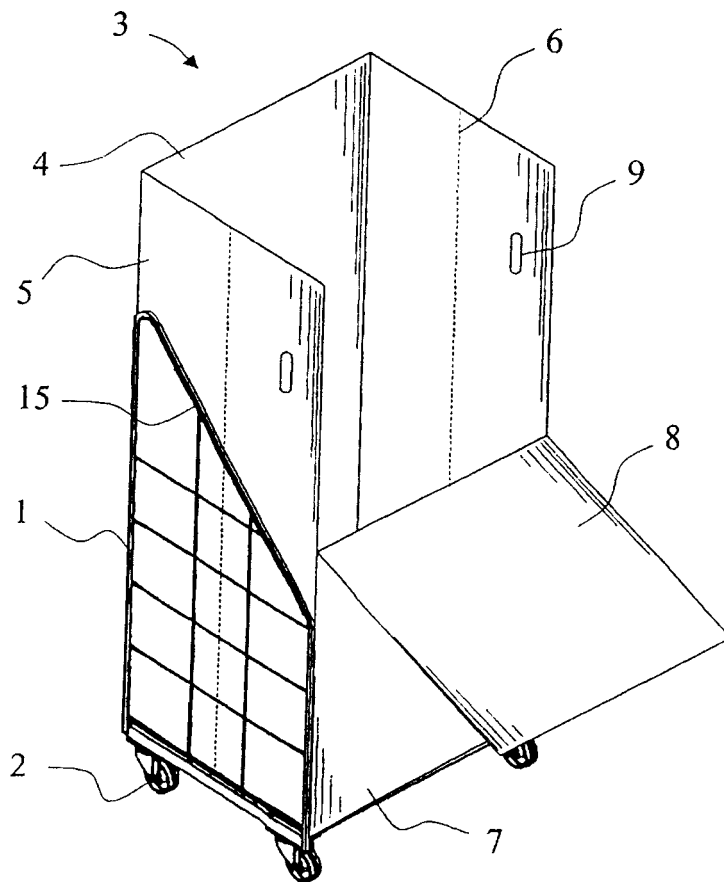
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(54) Title: **SUPPLY AND SALES UNIT**



(57) Abstract: The object of the invention is a supply and sales unit applicable for re-use which comprises of a light-structured frame (1), provided with at least a rear wall (12), sidewalls (15) which open to the sides from the front, and castors, and of a package element (3) to protect products, which element includes at least a rear wall (4), sidewalls (5) and a front wall (7). According to the invention, the frame (1) provided with castors (2) and the package element (3) are arranged as an integral functional unit for re-use so that the package element (3) has been fitted collapsible to the frame (1) provided with castors.

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SUPPLY AND SALES UNIT

The object of the invention is a supply and sales unit described in the preamble of Claim 1 and applicable for re-use.

For example transportation cages and product containers stack and bound on separate transportation pallets have generally been used for storage and transport, and nowadays also as supply and sales units, of different products, such as dairy and brewery products and many other products supplied by stores. Then, for example wrapping plastic or similar has been stretched around these transport cages and product containers stacked on pallet in order to retain the products hygienic and preserved from dust, and, when packed on pallets, in order to stay put on the pallet during transport and other handling. Furthermore, different kinds of straining ties have been used as aid. The problem with these solutions is the doing and undoing of wrapping packaging or straining tie fastening. The doing of wrapping packaging requires equipment developed for the purpose and ample space. In addition, after one use the wrapping plastic becomes extra waste, which must be properly disposed.

Another known method is to use a roll container, which has sidewalls and a floor constructed from, for example, metal gratings or similar, and castors mounted to the floor, by means of which the roll container may easily be moved. Furthermore, roll containers may have middle shelves. The roll containers are intended for re-use, and thus one has to be able to re-transport the empty roll containers for refilling. Many times the problems are this return transport and the space required by empty roll containers. Because of this, roll containers, which are collapsible and nestable when empty, and which thus require less space when empty, have been developed. However, the problem is that one has to use wrapping plastics and similar, which have the disadvantages described above, as dust and hygiene covers of roll containers.

Furthermore are known lightweight, roll-container-like transport units, the floor of which is a chassis, on top of which is mounted a four-walled wall element, intended for re-use and made of cardboard or plastic, to protect the product container. The wall element is fastened to the chassis with a separate, one-piece baseboard, which is locked in place with spring fasteners. In the lower part of the wall element, there are inwards-inverted folds which remain between the floor part and the chassis, when the wall element stays in place. The disadvantage of this solution is that the baseboard is unfastened, and it may be lost in the return phase. Then the whole unit becomes useless. Another disadvantage is the rigid, one-piece baseboard, which is difficult to fit into place when the wall element is placed on top of the chassis. Then the tall wall element many times prevents the pressing of the baseboard into its mounting holes, because the assembling person cannot reach from the top to position the baseboard accurately into its place and to press it into its mounting holes. It is practically impossible to pull the baseboard into its mounting holes from the bottom. It is most awkward and time-consuming, and requires the overturning of the chassis on its side. Then the tall wall element also comes easily loose and falls to the floor. Therefore, at least one more person is needed to assist with the assembly, and for example, to hold the wall element and the chassis, while the other person sets the baseboard close to the upper side of the chassis and locks the baseboard into the chassis. The assembly thus requires at least two persons in order to succeed quickly enough in practical working environment. Also the disassembly of the empty unit is difficult. One cannot easily reach up to lift the baseboard from the top, so the whole unit has to be overturned in order to unfasten the baseboard from its mounting holes. When the baseboard becomes loose, also the wall element becomes loose at the same time, and the baseboard stays somewhere inside the wall element, from which it must be sought separately. This is a slow work

phase, and it does not apply to the busy work pace of the store. A further disadvantage is that the loose, collapsible wall elements are awkward to handle because of their shape, and they are easily damaged or lost in re-transport. Then
5 their re-use is practically impossible.

The object of this invention is to eliminate the above-mentioned disadvantages and to obtain a new concept for a lightweight, economical, reliable and functional supply and
10 sales unit, which is intended for re-use and is light-structured, which may also function as a transport and storage unit, and which is later called simply as the solution according to the invention. This new concept combines
15 traditional transport package and roll container into one functional unit. The solution according to the invention is characterised in the characterising part of Claim 1. Other embodiments of the invention are characterised in the other claims.

20 An advantage of the lightweight supply and sales unit according to the invention is that, with a simple solution, one obtains a unit suitable for storage, transport, supply, and presentation and sales inside the store, which is unit easy to handle and easy to return when empty. The unit is
25 extremely versatile, as, by means of it, one may store, transport, supply and display many different products. Furthermore, the solution according to the invention is easy to store because of the small space it requires. A further advantage is that the material used in the unit may be
30 totally recyclable material, so the solution according to the invention is also environmentally friendly. Another advantage is the easy assembly of the unit, which may be performed by a single person. An advantage is also the easy disassembly of the empty unit into its transport set-up.
35 Unlike the prior-art example mentioned above, the solution according to the invention enables the assembly and disassembly of the unit by a single person. A further advantage is also that the combination of a frame of metal

and a package element of cardboard is extremely practicable. The metal frame, inter alia, protects the package element, and the package element correspondingly provides good protection for the products and a good image surface, for
5 example, for advertisements. Because of the protection provided by the metal frame, one has been able to lighten the package element by thinning the wall thickness of the package element. This way the price of the package element becomes also more economical. The metal frame also protects
10 the cardboard package element inside during re-transports.

The invention will next be explained in more detail by way of an example of embodiment, with reference to the accompanying drawings, in which

15

FIG.1 shows a diagonal top view of the supply and sales unit according to the invention,

FIG.2 shows a side view of the supply and sales unit according to the invention,

20 FIG.3 shows a front view of the supply and sales unit according to the invention,

FIG.4 shows a rear view of the supply and sales unit according to the invention,

FIG.5 shows a side view of the empty supply and sales
25 unit according to the invention partially assembled for re-transport,

FIG.6 shows a top view of the empty supply and sales unit according to the invention partially assembled for re-transport,

30 FIG.7 shows a top view of the empty supply and sales units according to the invention piled up for re-transport,

FIG.8 shows a side view of a detail of the package element of the supply and sales unit according
35 to the invention, and

FIG.9 shows a side view of a detail of the package element according to the second embodiment of the supply and sales unit according to the

invention.

In the solution illustrated by the drawings, the supply and sales unit comprises a light-structured metal frame 1, which is equipped with castors 2 and called a roll container, and a package element 3 constructed inside of it. The roll container 1 has grid-like sidewalls 15, rear wall 12 and floor 13. However, there is no actual front wall. The sidewalls 15 of roll container 1 are hinged from their rear edges to the rear wall 12 of roll container by means of hinges 17. Castors 2 are fitted to the lower part of sidewalls 15. The roll container is manufactured of metal or other material suitable for the purpose. Inside the roll container 1 is fitted the package element 3 for protecting the products to be handled, which element is a box-like element manufactured, for example, of cardboard, corrugated cardboard or other material suitable for the purpose of use. Package element 3 essentially has straight rear wall and sidewalls 5, in the middle of which there is a vertical fold 6, which extends to the total height of sidewall 5. In addition, the front edges of sidewalls include, on suitable level, handling openings 9 from which one may obtain adequate grip for moving sidewalls. The package element includes also a front wall which is divided with a horizontal folding into two pieces so that the upper part 8 of front wall 7 may be turned from package element 3 onwards down, when the upper part of front wall is open and allows easy access to the products in package element 3. The package element 3 may also have a cover piece, but it is not illustrated in the drawings. The package element 3 is dimensioned to fit inside roll container 1 so that it stands steadily and correctly in the roll container.

The rear wall 4 of package element 3 includes mounting openings 10 in order to fit the package element to the rear wall 12 of roll container 1. The mounting may be done either with bendable bars 11 illustrated in the drawings or, for example, with tape, string or wire. Bendable bar 11 is bent

from its ends inside the rear wall 4 of package element, and from its middle part, bendable bar 11 is conducted to pass outside the vertical wires of the rear wall 12 of roll container. Thus, the bar will press the rear wall 4 of package element fast to the rear wall 12 of roll container.

The assembly phases of empty roll containers are illustrated in Figures 5-7. First in the assembly, the floor 13 of roll container is lifted in the direction of arrow 14 so that mounting pins 18 rise from the locking openings 19 located in the lower part of sidewalls 15. Now the sidewalls may be turned from their front edges to the side in the direction of arrows 21. Thus the piling of empty roll containers into a small space is enabled. In order to position floor 13 as vertical as possible in the assembly phase without breaking the lower edge of package element 3, the floor is hinged from its rear edge to a suitable distance from the rear wall 12 of roll container into the direction of the front edge of roll container. Floor 13 may be turned upwards and locked into its upper position during re-transport and storage. Then a fixed floor part of suitable width extends from the lower part of the rear edge of roll container towards the front edge of roll container. This floor part may also support the collapsed package element 3, and, at the same time, a space is formed for the collapsed package element between the rear wall 12 of roll container and upwards-turned floor 13.

Next it will be explained how a supply and sales unit provided with package element 3 is assembled for re-transport and possible storage. One method is to first open the sidewalls 15 of roll container in a way described in the above chapter. After this, the baseboard 16, which is turnably fitted into the lower part of the rear wall 4 of package element 3, is turned vertical towards the rear wall of package element, and the package element is piled towards the rear wall, when folds 6 are directed inside the package element. This way, the extreme narrowness of package element

in the front and rear direction of roll container is obtained. After this the floor 13 of roll container is turned into its vertical position and locked into such a vertical position that there still is a suitable, but not
5 too wide a space for the package element between floor 13 and rear wall 12 of roll container. Locking means are not illustrated in the drawings. Figure 7 shows how several empty roll containers 1 may be collapsed one within the other so that the sidewalls 15 of roll containers are opened
10 from their front edge.

Figures 8 and 9 illustrate the fitting of the lower part of package element 3 on top of roll container. Drawings have been simplified by illustrating only a few basic components,
15 and they are not shown in scale. The baseboard 16 of package element 3 is shown in both its lower position on top of the floor 13 of roll container, and drawn in dashed line in its partly turned position. Arrow 20 illustrates the direction of turning downwards. In the front edge of the floor 13 of
20 roll container there is an upwards-pointing ledge-like folding part 21, the purpose of which is to support the lower part of package element. In Figure 8, the upwards-folded folding part 22 of the front edge of the baseboard 16 of package element supports itself directly from the rear to
25 the ledge-like folding part 21 of the floor 13 of roll container. This makes it possible for the package element to keep neatly inside the roll container. Similarly, the lower part of the front wall of package element is extended outside the upwards-pointing folding part 21. This, on its
30 part, enables the package element to retain its shape well, when the package element cannot withdraw towards the rear wall. In a solution according to Figure 9, both the baseboard 16 of package element and the lower part of front wall are inside the front edge 21 of the floor of roll
35 container. This solution is functional when the baseboard 16 of package element is sturdy enough to hold the package element in its shape. The sturdiness of the baseboard may further be increased, inter alia, by providing the baseboard

16 with upwards-directed folding parts also in the side edges of the baseboard. These folding parts are not shown in the drawings.

- 5 It is evident to the professionals of the field that the invention is not limited to the above-described example of embodiment, but may vary within the scope of the later presented claims. Thus, for example, the fitting of the rear wall 12 of roll container may differ from the one explained
- 10 above. The fitting may be obtained without mounting openings 10, for example, by means of suitable hooks or similar. Likewise, the structure of the package element may differ from the one presented above. It is crucial that package element 3 is collapsible against the rear wall 12 of roll
- 15 container. Then, for example, one of the corners of package element 3 may be opened first, and after this, the walls are folded together on top of each other. The baseboard 16 of package element may also be mounted, as distinguished from the description above, to the front edge or sidewall of
- 20 package element if there is no fold 6.

CLAIMS

1. A supply and sales unit applicable for re-use which comprises of a frame (1), provided with at least a rear wall (12), sidewalls (15) which open to the sides from the front, and castors (2), and of a package element (3) to protect products, which package element includes at least a rear wall (4), sidewalls (5) and a front wall (7), **characterised** in that the frame (1) provided with castors (2) and the package element (3) are arranged as an integral, functional unit for re-use so that the package element (3) has been fitted collapsible to the frame (1) provided with castors.
2. A supply and sales unit according to Claim 1 **characterised** in that the sidewalls (5) of package element (3) are provided with essentially vertical folds (6).
3. A supply and sales unit according to Claim 1 or 2, **characterised** in that the vertical fold (6) of both sidewalls (5) is essentially in the middle of sidewall (5) and extends essentially to the total height of sidewall (5).
4. A supply and sales unit according to Claim 1, 2 or 3, **characterised** in that the middle part of both sidewalls (5) is foldable inwards along fold (6).
5. A supply and sales unit according to one of Claims above, **characterised** in that the package element (3) includes a baseboard (16) which is turnably fitted to the lower part of rear wall (4).
6. A supply and sales unit according to one of Claims above, **characterised** in that in the front edge of baseboard (16) there is a folding part (22), which is arranged to be directed essentially upwards when baseboard (16) is turned into its lower position.

7. A supply and sales unit according to one of Claims above, **characterised** in that the supply and sales unit includes a floor (13) which is arranged turnable towards the rear wall (12) of the supply and sales unit so that package element (3) may stay between floor (13) and rear wall (12) when collapsed.

8. A supply and sales unit according to one of Claims above, **characterised** in that the supply and sales unit is dimensioned so that when sidewalls (15) are opened from the front and floor (13) is lifted up at the front, the supply and sales units may be fitted partly one within the other so that each supply and sales unit includes a collapsed package element (3).

15

9. A supply and sales unit according to one of Claims above, **characterised** in that the package element (3) is fitted from its rear part to the rear wall of a lightweight frame (1).

10. A supply and sales unit according to one of Claims above, **characterised** in that the frame (1) is a grate-like, light-structured roll container, and that the package element (3) is of cardboard, corrugated cardboard, pasteboard or other material suitable for the purpose.

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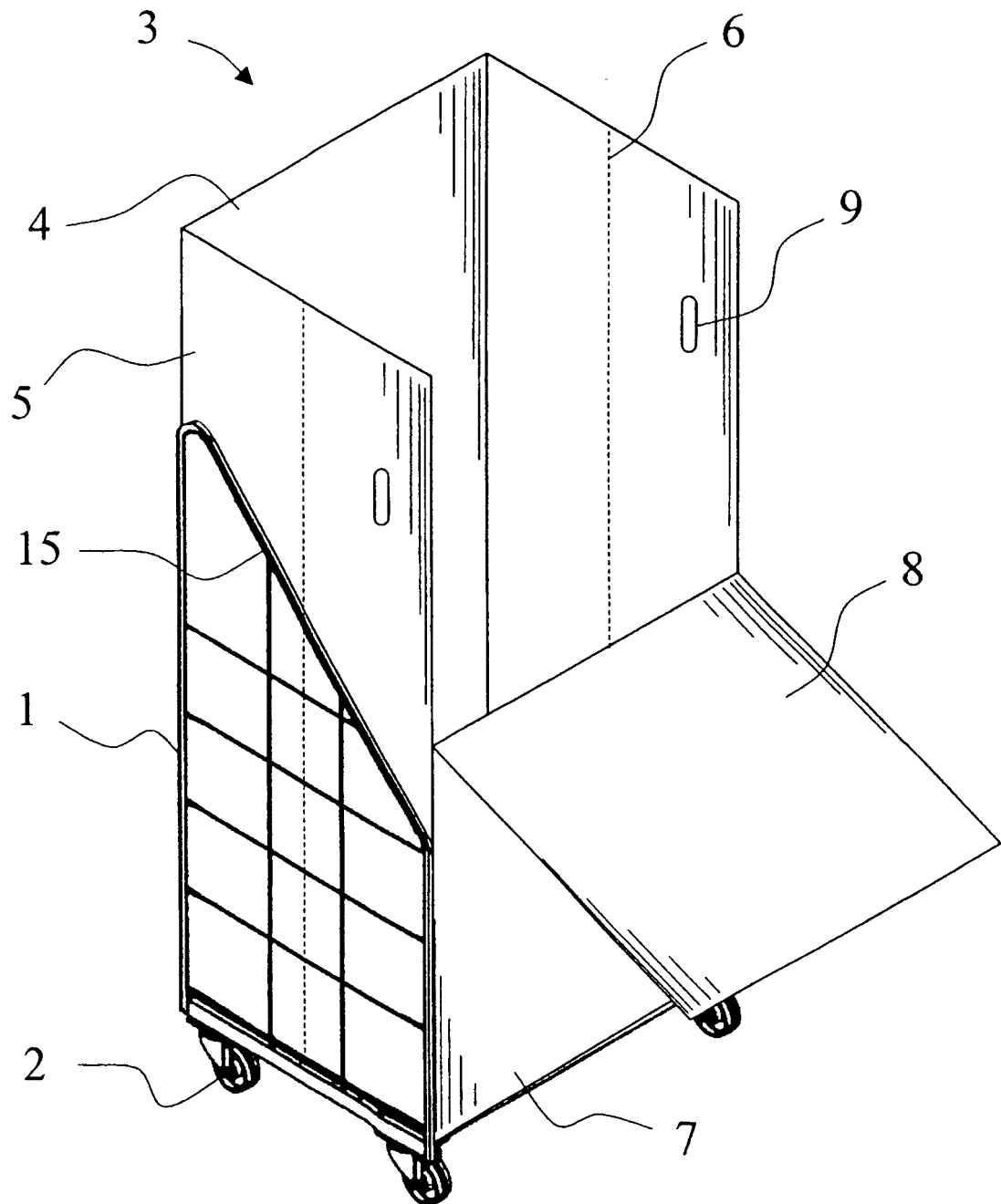


Fig. 1

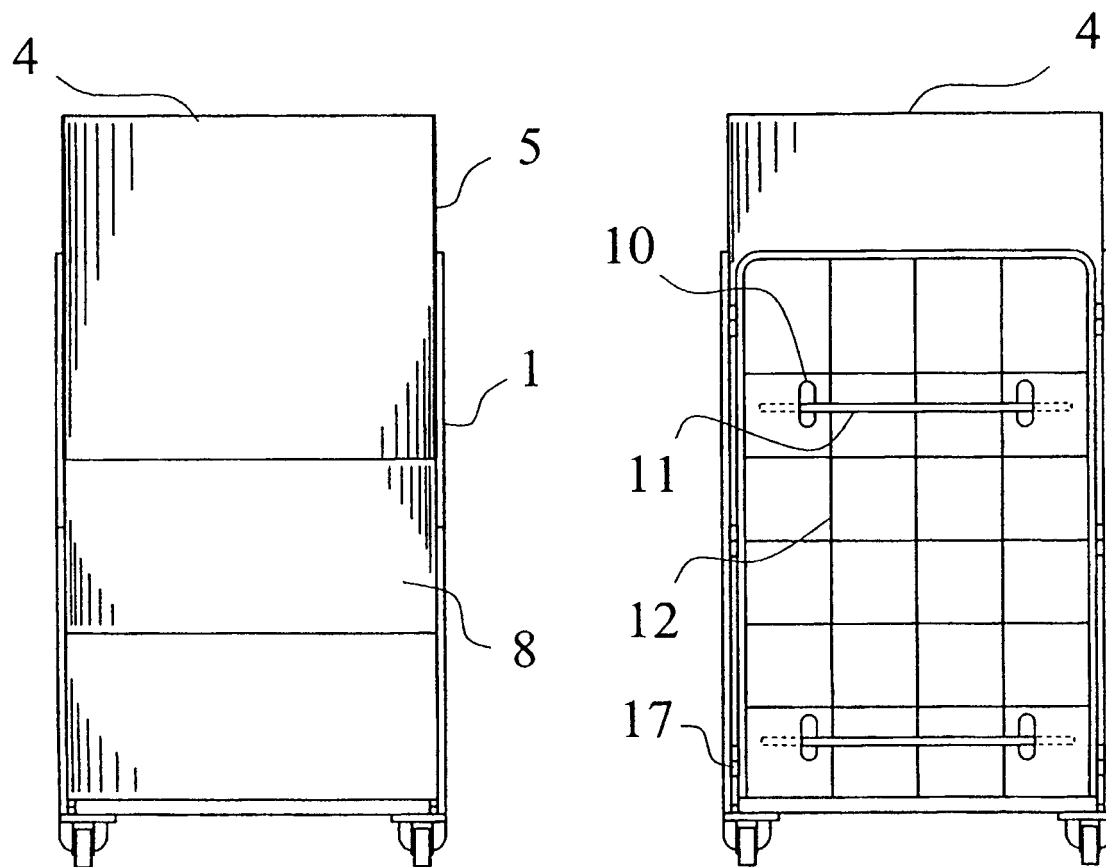
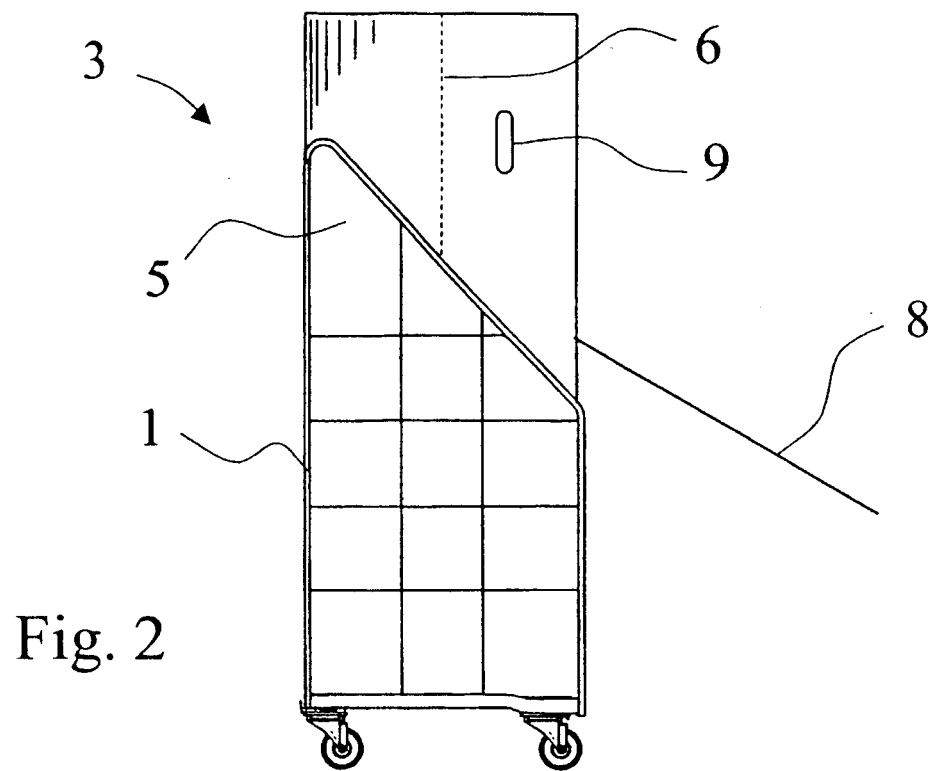


Fig. 3

Fig. 4

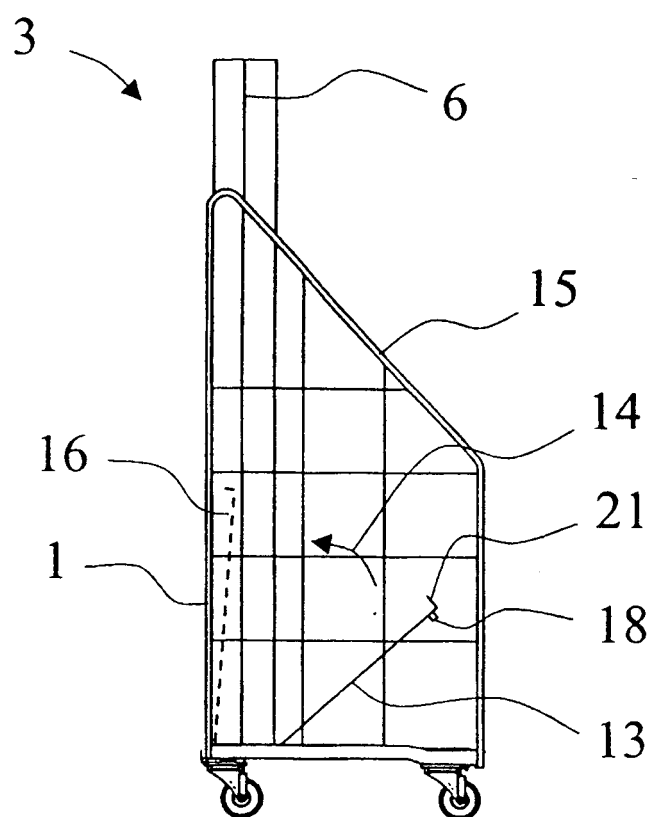


Fig. 5

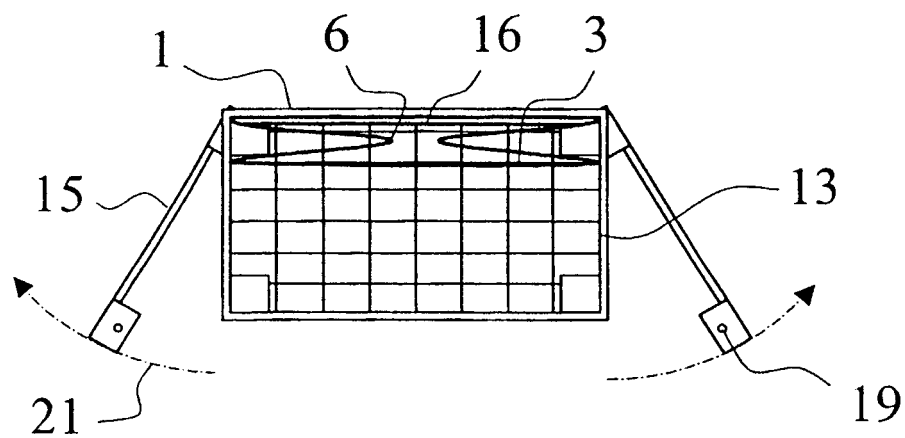
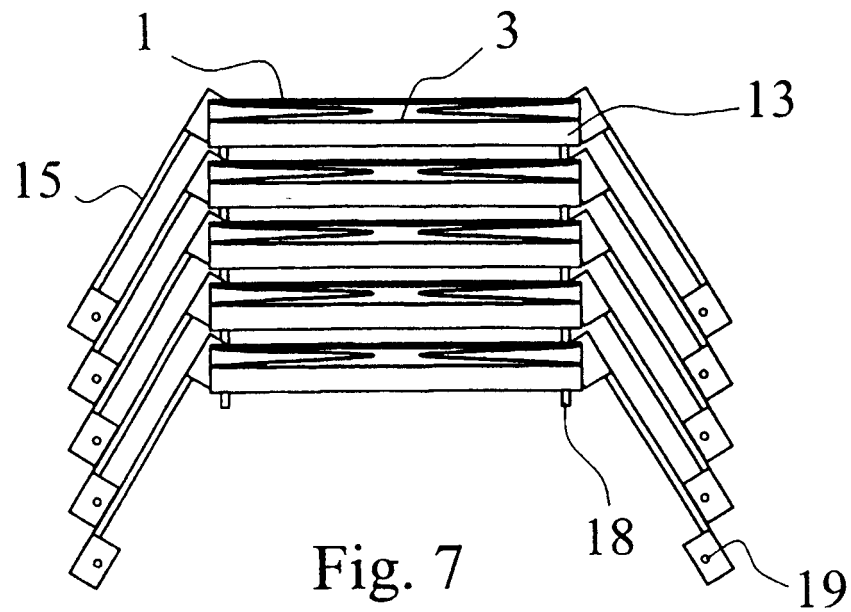


Fig. 6



INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A47F 5/11, A47F 5/13, B65D 19/12 // B62B 3/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A47F, B65D, B62B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

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☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Information on patent family members

02/06/03

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